

AMENDMENTS TO THE CLAIMS

1-4. (Canceled)

5. (Currently Amended) A rack-and-pinion steering apparatus including pinion teeth provided on a circumferential surface of a pinion shaft and rack teeth provided on an outer surface of a rack shaft, meshed with each other substantially without backlash, so as to transmit rotation of the pinion shaft connected to a steering member to the rack shaft via a mesh portion between the pinion teeth and the rack teeth, thus to move the rack shaft in an axial direction thereof at a predetermined stroke ratio for execution of steering operation,

wherein the pinion teeth ~~and the rack teeth~~ are provided with a module m , a number of teeth z , a tooth depth h and a helix angle β that remain within the following respective ranges, ~~under a condition of~~ while satisfying a pressure angle α being within a range of 24° to 30° and the stroke ratio:

module m : 1.8 to 2.0,

number of teeth z : 7 to 13,

tooth depth h : 2m to 2.5m, and

helix angle β : 40° or smaller, and

wherein a trochoid interference clearance of the rack teeth and pinion teeth is positive.

6. (Previously Presented) The rack-and-pinion steering apparatus according to claim 5, wherein the pinion teeth are subjected to a tooth surface modification such that a difference in pressure angle is provided in a direction of the tooth profile so as to increase a mesh stress with the rack teeth, and that a central portion thereof is formed in a convex shape.

7. (Previously Presented) The rack-and-pinion steering apparatus according to claim 5, wherein the pinion teeth are subjected to a tooth surface modification of crowning along a tooth trace direction.

8. (Previously Presented) The rack-and-pinion steering apparatus according to claim 5, wherein a motor for steering assistance is disposed between the steering member and the pinion shaft, thus to constitute an electric power steering apparatus that transmits the rotational force of the motor to the pinion shaft to assist the steering operation executed according to the rotation of the pinion shaft.

9. (New) The rack-and-pinion steering apparatus according to claim 5, wherein the trochoid interference clearance is 0.3 mm or more.